

CLAIMS

What is claimed is:

1 1. A therapeutic medical appliance for introduction into a
2 cavity in the anatomy of a patient, the medical appliance comprising
3 a tube with first and second ends and the tube defining a cavity
4 extending between the first and second ends.

1 2. The therapeutic medical appliance of claim 1, wherein
2 tube forms a scaffolding such that when pressure is exerted along
3 varying points of the extension of the appliance, the appliance does
4 not undesirably foreshorten or elongate.

1 3. The therapeutic medical appliance of claim 2, wherein
2 along the extension of the appliance, the scaffolding forms
3 geometrical patterns.

1 4. The therapeutic medical appliance of claim 2, wherein
2 the scaffolding further comprises a coating coupled with the
3 scaffolding, the coating of sufficient thickness to prevent the medical
4 appliance from becoming epithelialized when installed in the desired
5 portion of the patient's anatomy.

1 5. The therapeutic medical appliance of claim 4, wherein
2 the coating does not inhibit flexing or radial expansion of the medical
3 appliance.

1 6. The therapeutic medical appliance of claim 5, wherein
2 the coating is coupled with the medical appliance about the first and
3 second ends thereof.

1 7. The therapeutic medical appliance of claim 3, wherein
2 the dimensions of the scaffolding geometry determine torsionality of
3 the medical appliance.

1 8. The therapeutic medical appliance of claim 3, wherein
2 the scaffolding is formed of a memory capable alloy.

1 9. The therapeutic medical appliance of claim 8, wherein
2 the scaffolding is electropolished.

1 10. The therapeutic medical appliance of claim 3, further
2 comprising a connector coupled with portions of the geometrical
3 patterns, the connector comprising a crossing member and a plurality
4 of leg members extending from the crossing member.

1 11. The therapeutic medical appliance of claim 10, wherein
2 the connector further comprises a rectangular detent extending from
3 a leg thereof.

1 12. The therapeutic medical appliance of claim 10, wherein
2 the length of the leg members and the degree of the angle at which
3 the legs extend from the crossing member determines the relative
4 flexibility of the medical appliance.

1 13. The therapeutic medical appliance of claim 12, wherein
2 the angle at which the leg members extend from the crossing
3 member is greater than 90°.

1 14. The therapeutic medical appliance of claim 13, wherein
2 the medical appliance is relatively rigid.

1 15. The therapeutic medical appliance of claim 13, wherein
2 the angle at which the leg members extend from the crossing
3 member is 90° or less.

1 16. The therapeutic medical appliance of claim 14, wherein
2 the medical appliance is relatively flexible.

1 17. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially U-shaped.

1 18. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially W-shaped.

1 19. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially V-shaped.

1 20. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially Z-shaped.

1 21. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially S-shaped.

1 22. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially X-shaped.

1 23. The therapeutic medical appliance of claim 1, further
2 comprising a second self-sealing membrane about the second end
3 thereof.

1 24. A method of treating a defect characterized by
2 pulmonary blebs and/or diffused destructive parenchymal disease in a
3 patient, the method comprising the steps of:

4 providing a therapeutic medical appliance comprising: a
5 tube with first and second ends and the tube defining a void
6 extending between the first and second ends, the medical
7 appliance further comprising a self healing membrane coupled
8 about the first end thereof;

9 placing the therapeutic medical appliance about a
10 target site in a lung of a patient; and

11 introducing an adhesive into the lung through the self-
12 sealing membrane;

13 whereby the adhesive causes surfaces of lung sections to
14 coalesce and seal the defect.

1 25. The method of claim 24, wherein the adhesive is a
2 localized inflammatory response causing and gas-absorbing agent.

1 26. The method of claim 25, further comprising the step of
2 collapsing sections of the lung by evacuating the inflammatory
3 response causing and gas-absorbing agent.

1 27. The method of claim 24, wherein the medical appliance
2 further comprises anti-microbial agents coupled therewith.

1 28. The method of claim 24, wherein the medical appliance
2 further comprises chemotherapeutic agents coupled therewith.

1 29. A kit for treating a defect characterized by pulmonary
2 blebs and/or diffused destructive parenchymal disease in a patient,
3 the kit comprising:

4 at least one therapeutic medical appliance comprising: a
5 tube with first and second ends and the tube defining a void
6 extending between the first and second ends, the medical

7 appliance further comprising a self healing membrane coupled
8 about the first end thereof; and
9 a delivery device for delivery of the therapeutic medical
10 appliance(s).

1 30. The kit of claim 29, wherein the delivery device is capable
2 of placement of a plurality of therapeutic medical appliances in a
3 single procedure.

1 31. The kit of claim 30, wherein the plurality of therapeutic
2 medical appliances are contained in a single housing.

1 32. The kit of claim 31, wherein the delivery device can be
2 reloaded with additional housings of therapeutic medical appliances
3 in order to perform multiple procedures.

1 33. A device for allowing a user to deploy a plurality of
2 therapeutic medical appliances in an anatomical lumen of a patient,
3 the device comprising:

4 a longitudinally extending outer tubular member having
5 distal and proximal ends and an interior and exterior surface,
6 the outer tubular member defines a lumen longitudinally
7 extending substantially the distance from the distal end to the
8 proximal end of the outer tubular member and forming a
9 longitudinal expanse there between, running parallel to the
10 longitudinal expanse are a plurality of grooves, the longitudinal
11 expanse forming a lumen there through, and the outer tubular
12 member having a tip coupled with the distal end;

13 a plurality of tracks complementary and slidably coupled
14 with the grooves such that the tracks and the grooves are
15 linearly displaceable with respect to the other, the tracks

16 having proximal and distal ends and a plurality of tabs spaced
17 at a functional distance apart from one another between the
18 proximal and distal ends thereof, the tabs facing toward the
19 lumen of the outer tubular member; and

20 a handle, coupled with a portion of the outer tubular
21 member, the handle having first and second ends.

1 34. The device of claim 33, further including at least one
2 radially self-expanding therapeutic medical appliance carried
3 between tabs of the plurality of tracks, within the lumen of the outer
4 tubular member and thereby maintained in the radially contracted
5 state.

1 35. The device of claim 33, wherein the outer tubular member
2 defines longitudinally extending channels formed between the
3 exterior and interior surfaces thereof.

1 36. The device of claim 35, wherein the longitudinally
2 extending channels accommodate utility instruments through a lumen
3 thereof.

1 37. The device of claim 36, wherein the utility instruments are
2 selected from the group consisting of guidewires, optical devices,
3 syringe systems or combinations thereof.

1 38. The device of claim 37, wherein the syringe system has
2 capabilities selected from the group consisting of thermotherapy,
3 cryotherapy, electrocautery therapy, photodynamic therapy,
4 chemotherapy, adhesive delivery or combinations thereof.

1 39. The device of claim 38, wherein the syringe system is
2 capable of administering a bioactive product.

1 40. The device of claim 39, wherein the bioactive product is
2 an adhesive.

1 41. The device of claim 37, wherein the guidewire has optical
2 capabilities.

1 42. The device of claim 37, wherein the guidewire has
2 ultrasound capabilities.

1 43. The device of claim 33, wherein the distal tip comprises
2 an interior and an exterior surface and distal and proximal ends.

1 44. The device of claim 43, wherein the distal tip further
2 comprises a light source.

1 45. The device of claim 44, wherein the distal tip further
2 comprises a lens.

1 46. The device of claim 43, wherein the distal tip further
2 comprises utility grooves formed along the exterior surface thereof,
3 which extend substantially between the distal and proximal ends
4 thereof.

1 47. The device of claim 43, wherein the distal tip defines a
2 plurality of apertures formed there through.

1 48. The device of claim 34, wherein the outer tubular member
2 when moved longitudinally relative to the track members in a
3 proximal direction away from the selected location, releases the
4 therapeutic medical appliance for radial self-expansion.

1 49. The device of claim 34, wherein there are at least two
2 therapeutic medical appliances.

1 50. The device of claim 49, wherein the outer tubular member
2 when moved longitudinally relative to the track members in a
3 proximal direction away from the selected location, releases the
4 distal most therapeutic medical appliance for radial self-expansion
5 and places the distally penultimate therapeutic medical appliance in
6 a ready deployment position within the outer tubular member lumen.

1 51. The device of claim 37, wherein a guidewire is introduced
2 through a portion of the exterior diameter of the outer tubular
3 member.

1 52. The device of claim 35, wherein the longitudinally
2 extending channels of the outer tubular member is configured to
3 receive an optical scope.

1 53. The device of claim 33, wherein the outer tubular member
2 is clear.

1 54. The device of claim 33, wherein the outer tubular member
2 is kink resistant.

1 55. The device of claim 34, wherein the handle has a safety
2 means that prevents premature deployment of the at least one
3 therapeutic medical appliance.

1 56. The device of claim 55, wherein the tabs prevent the
2 uncontrolled proximal migration of the therapeutic medical
3 appliance.

1 57. A device for allowing a user to deploy a plurality of
2 therapeutic medical appliances in an anatomical lumen of a patient,
3 the device comprising:

4 a longitudinally extending outer tubular member having
5 distal and proximal ends and an interior and exterior surface,
6 the outer tubular member defines a lumen longitudinally
7 extending substantially the distance from the distal end to the
8 proximal end of the outer tubular member and forming a
9 longitudinal expanse there between, running parallel to the
10 longitudinal expanse are a plurality of grooves, the longitudinal
11 expanse forming a lumen there through;

12 a track complementary and slidably coupled with a
13 groove such that the tracks and the groove are linearly
14 displaceable with respect to the other, the tracks having
15 proximal and distal ends and a plurality of tabs spaced at a
16 functional distance apart from one another between the
17 proximal and distal ends thereof, the tabs facing toward the
18 lumen of the outer tubular member; and

19 a handle, coupled with a portion of the outer tubular
20 member, the handle having first and second ends.

1 58. The device of claim 57, wherein a therapeutic medical
2 appliance retaining housing is reversibly coupled about the distal end
3 of the device.

1 59. The device of claim 58, wherein the housing contains one
2 or more therapeutic medical appliances.

1 60. The device of claim 59, wherein the tabs prevent the
2 uncontrolled proximal migration of the therapeutic medical
3 appliance.

1 61. A therapeutic medical appliance for introduction into a
2 cavity in the anatomy of a patient, the medical appliance comprising

3 a tube with first and second ends and the tube defining a cavity
4 extending between the first and second ends, the medical appliance
5 further comprising a self-sealing membrane coupled about the first
6 end thereof.

1 62. The therapeutic medical appliance of claim 1, wherein
2 tube forms a scaffolding such that when pressure is exerted along
3 varying points of the extension of the appliance, the appliance does
4 not undesirably foreshorten or elongate.

1 63. The therapeutic medical appliance of claim 2, wherein
2 along the extension of the appliance, the scaffolding forms
3 geometrical patterns.

1 64. The therapeutic medical appliance of claim 2, wherein
2 the scaffolding further comprises a coating coupled with the
3 scaffolding, the coating of sufficient thickness to prevent the medical
4 appliance from becoming epithelialized when installed in the desired
5 portion of the patient's anatomy.

1 65. The therapeutic medical appliance of claim 4, wherein
2 the coating does not inhibit flexing or radial expansion of the medical
3 appliance.

1 66. The therapeutic medical appliance of claim 5, wherein
2 the coating is coupled with the medical appliance about the first and
3 second ends thereof.

1 67. The therapeutic medical appliance of claim 3, wherein
2 the dimensions of the scaffolding geometry determine torsionality of
3 the medical appliance.

1 68. The therapeutic medical appliance of claim 3, wherein
2 the scaffolding is formed of a memory capable alloy.

1 69. The therapeutic medical appliance of claim 8, wherein
2 the scaffolding is electropolished.

1 70. The therapeutic medical appliance of claim 3, further
2 comprising a connector coupled with portions of the geometrical
3 patterns, the connector comprising a crossing member and a plurality
4 of leg members extending from the crossing member.

1 71. The therapeutic medical appliance of claim 10, wherein
2 the connector further comprises a rectangular detent extending from
3 a leg thereof.

1 72. The therapeutic medical appliance of claim 10, wherein
2 the length of the leg members and the degree of the angle at which
3 the legs extend from the crossing member determines the relative
4 flexibility of the medical appliance.

1 73. The therapeutic medical appliance of claim 12, wherein
2 the angle at which the leg members extend from the crossing
3 member is greater than 90°.

1 74. The therapeutic medical appliance of claim 13, wherein
2 the medical appliance is relatively rigid.

1 75. The therapeutic medical appliance of claim 13, wherein
2 the angle at which the leg members extend from the crossing
3 member is 90° or less.

1 76. The therapeutic medical appliance of claim 14, wherein
2 the medical appliance is relatively flexible.

1 77. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially U-shaped.

1 78. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially W-shaped.

1 79. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially V-shaped.

1 80. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially Z-shaped.

1 81. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially S-shaped.

1 82. The therapeutic medical appliance of claim 3, wherein
2 the geometrical patterns are substantially X-shaped.

1 83. The therapeutic medical appliance of claim 1, further
2 comprising a second self-sealing membrane about the second end
3 thereof.

1 84. A device for allowing a user to deploy a stent in an
2 anatomical lumen of a patient, the device comprising:

3 a longitudinally extending inner tubular member having
4 distal and proximal ends, the inner tubular member defines a
5 lumen longitudinally extending substantially the distance from
6 the distal end to the proximal end of the inner tubular member
7 and forming a longitudinal expanse there between, the

8 longitudinal expanse forming an aperture there through, and
9 the inner tubular member having a tip coupled with the distal
10 end, the inner tubular member about the distal end and
11 proximal the tip further comprises a stent carrier adapted to
12 carry a therapeutic medical appliance, the inner tubular
13 member reversibly dividable into a plurality of sections at a
14 junction between the distal and proximal end;

15 a longitudinally extending outer tubular member having
16 proximal and distal ends an exterior and interior diameter, the
17 outer tubular member being longitudinally and axially
18 displaceable relative to the inner tubular member; and

19 a handle, coupled with a portion of the outer tubular
20 member, the handle having first and second ends.

1 84. The device of claim 84, wherein the inner tubular member
2 is reversibly dividable into a plurality of sections at a junction
3 between the distal and proximal end.

1 85. The device of claim 84, wherein the outer tube is
2 reversibly dividable into a plurality of sections at a junction between
3 the distal and proximal end.

1 86. The device of claim 85, wherein the inner tubular member
2 is reversibly dividable into a plurality of sections at a junction
3 between the distal and proximal end.